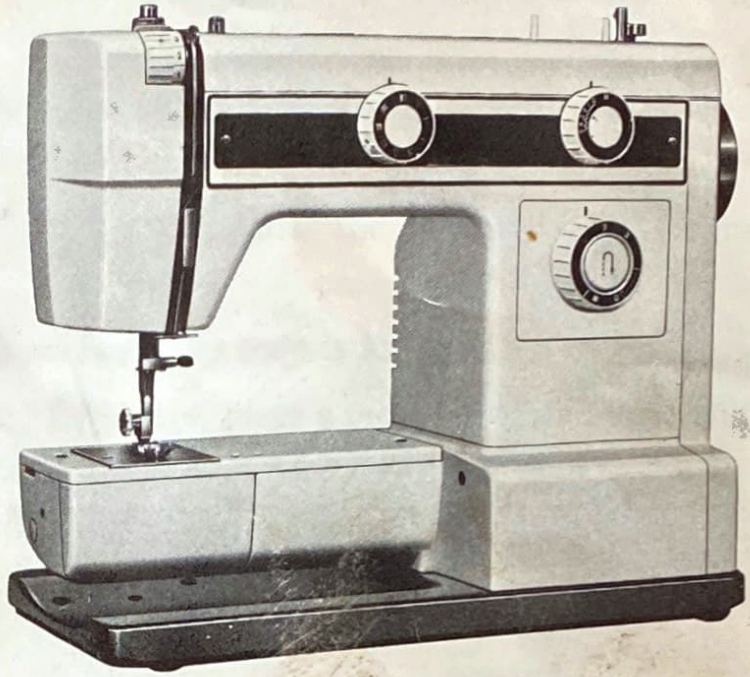
INSTRUCTION BOOK



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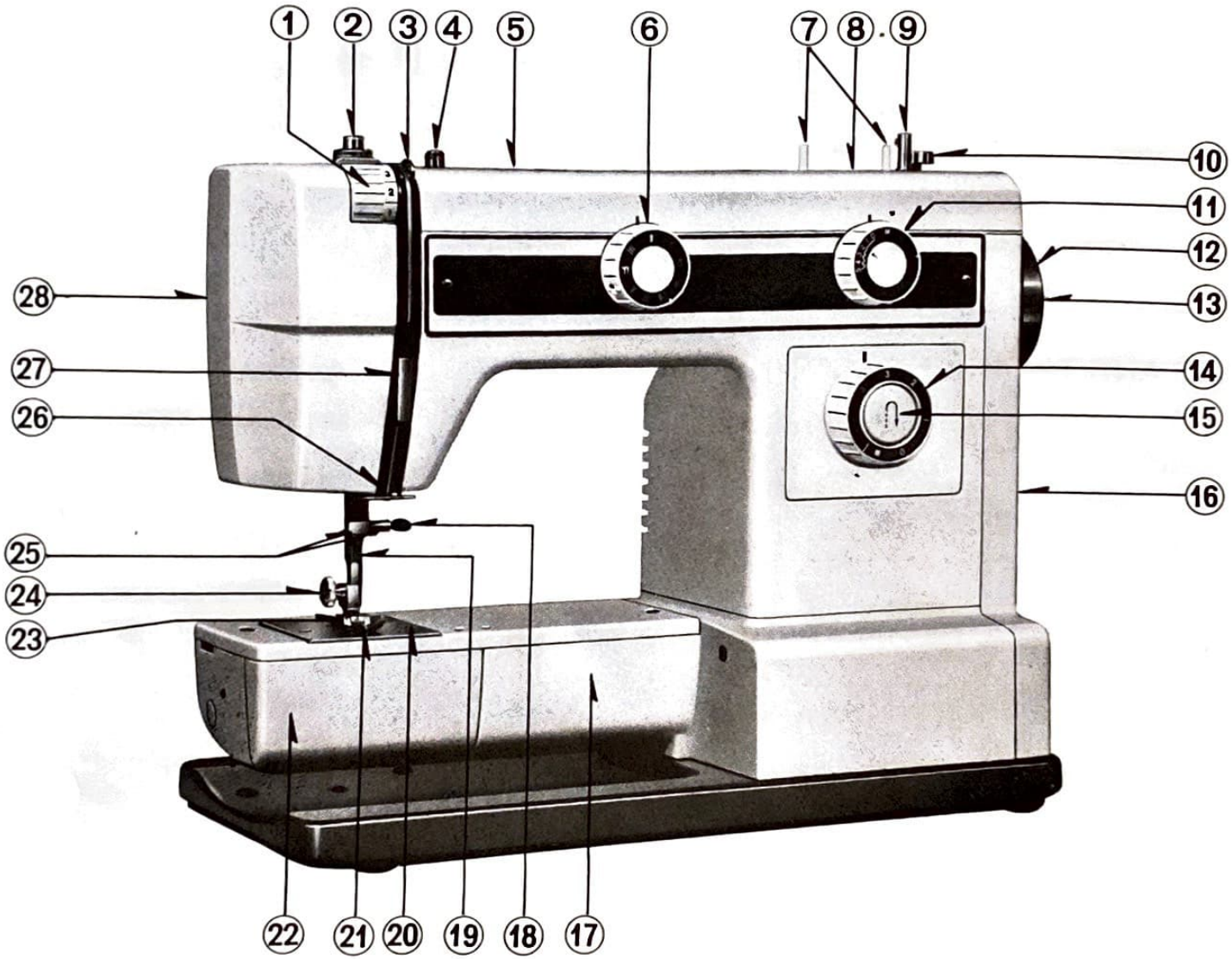
NAMES OF PARTS

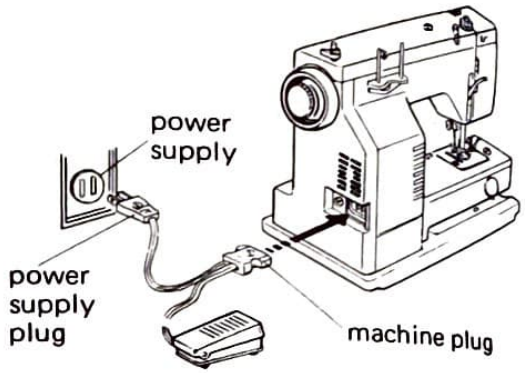


① Thread tension dial
② Pressure regulator (Patch-0-Matic)
③ Thread take-up lever
④ Bobbin winder thread guide
⑤ Top cover
⑥ Pattern selector dial
⑦ Spool pins
⑧ Thread guide on top cover
⑨ Bobbin winder spindle
⑩ Bobbin winder stopper
⑪ Stitch width dial
⑫ Balance wheel
⑬ Stop motion knob
⑭ Stitch length dial
⑮ Reversing button
⑯ Belt cover
⑰ Free arm
⑱ Needle clamp and screw
⑲ Needle
⑳ Needle plate
㉑ Feed dog
㉒ Shuttle cover
㉓ Presser foot
㉔ Presser foot thumb screw
㉕ Needle bar thread guide
㉖ Lower thread guide
㉗ Check spring holder
㉘ Face plate

HOW TO CONNECT THE MACHINE TO THE POWER SUPPLY

1. Fit the machine plug into the machine.
2. Plug the machine to the power supply.

Note: *Before plugging in the machine, ensure that the voltage and number of cycles indicated, is conformed to your electrical power supply.

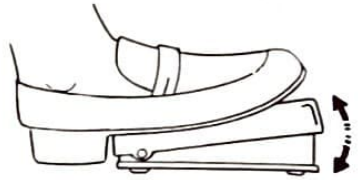


HOW TO USE THE SPEED CONTROLLER

Sewing speed can be varied by the speed controller. The harder you press on the controller, the faster the machine runs.

Note: *By releasing the controller, the machine stops running automatically.

*Before using the machine, practice controlling the speed without threading.

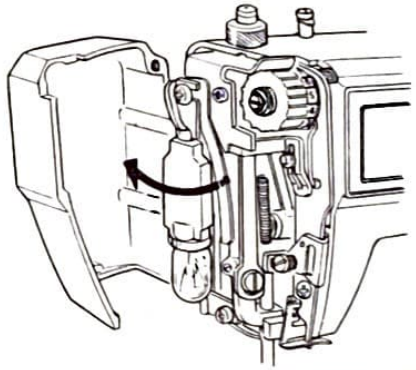


SEWING LAMP

The sewing lamp is located behind the face plate.

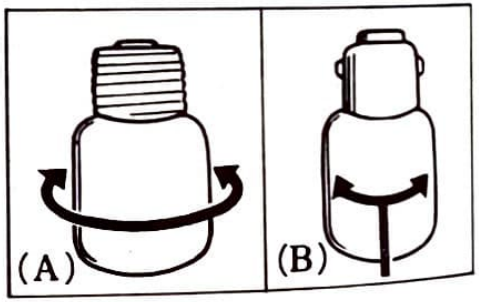
Bulb type (A) :
- To remove ... Unscrew
- To replace ... Screw

Bulb type (B) :
- To remove ... Push and twist counter-clockwise
- To replace ... Push and twist clockwise



Note: *Before replacing a bulb, disconnect the machine from the power supply.

*Bulbs are available from sewing machine retailers. (Use a 15-Watt bulb)



Caution!

Before leaving the machine, changing parts or doing any other work on it, always disconnect the plug from the wall socket.
Never place anything on the speed controller, otherwise the machine will start inadvertently or the controller or motor may burn out.

THREAD AND NEEDLE CHART

	FABRICS	THREADS	NEEDLE SIZE
LIGHT WEIGHT	Crepe de Chine, Voile Lawn, Organdy, Georgette, Tricot	Fine Silk Fine Cotton Fine Synthetic Fine Cotton Covered Polyester	9 or 11
MEDIUM WEIGHT	Linens, Cotton, Pique Serge, Double Knits, Percale	50 silk 50 to 80 Cotton 50 to 60 Synthetic Cotton Covered Polyester	11 or 14
HEAVY WEIGHT	Denim, Tweed, Gabardine, Coating, Drapery and Upholstery Fabric	50 Silk 40 to 50 Cotton 40 to 50 Synthetic Cotton Covered Polyester	14 or 16

Note: *In general, fine threads and needles are used for sewing thin fabrics, and thicker threads and needles are used for sewing heavy fabrics. Always test thread and needle size on a small piece of fabric which will be used for actual sewing.

*Use the same thread for needle and bobbin.

*When sewing stretch, very fine fabrics and synthetics, use a BLUE TIPPED needle. The blue tipped needle effectively prevents skipped stitches.

*When sewing very fine fabrics, sew over a piece of paper to prevent yarn distortion.

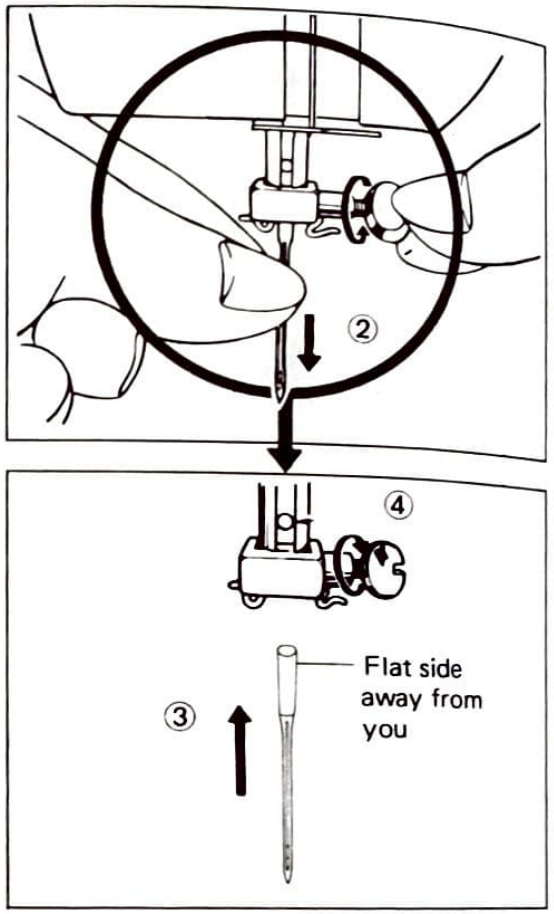
CHANGING THE NEEDLE

① Turn the balance wheel towards you until the needle is at its highest position.

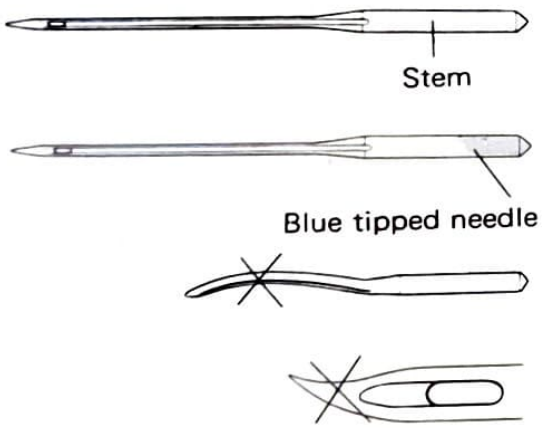
② Loosen the needle clamp screw by turning its top edge towards you. Remove the needle from the clamp.

③ Place the new needle into the needle clamp with it's flat side facing away from you. Push the needle up into needle clamp as far as possible.

④ Tighten the needle clamp screw firmly.



TO SELECT A SUITABLE NEEDLE



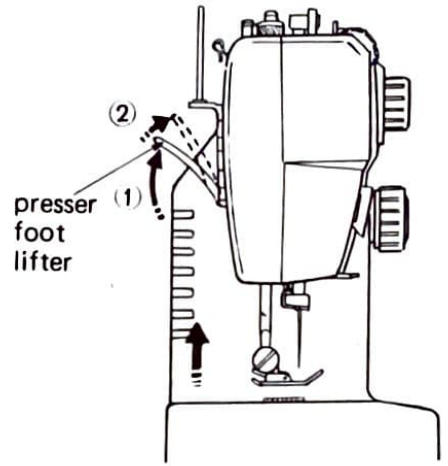
- A number indicating the size of needle is marked on the stem. The higher the number, the thicker the needle.
- A BLUE TIPPED needle is supplied with the machine.

*Do not use any needle which is bent or blunted.

RAISING OR LOWERING THE PRESSER FOOT

① By raising or lowering the presser foot lifter, the presser foot goes up and down respectively.

② For additional clearance, the foot lifter can be raised higher to sew on heavy fabrics.

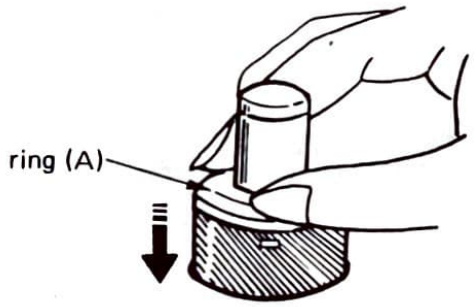


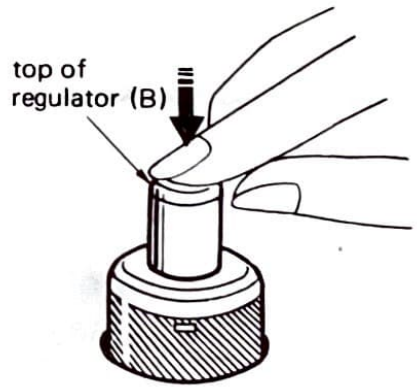
REGULATING THE PRESSER FOOT PRESSURE
(Patch-O-Matic)

To release the pressure, push ring (A) downwards. This causes the regulator to spring up to its highest position. The material is now free from any pressure of the presser foot.

For sewing thin or light materials, push regulator (B) down just a little to provide the light pressure required.

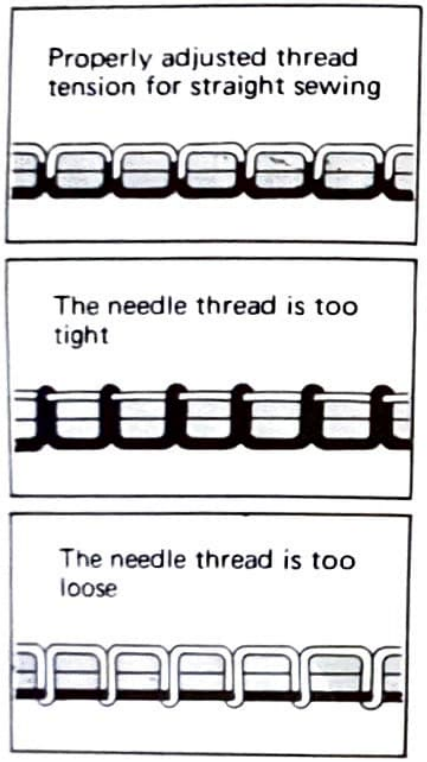
If you are sewing thick or heavy materials, push the regulator (B) farther down to increase the pressure on the material.





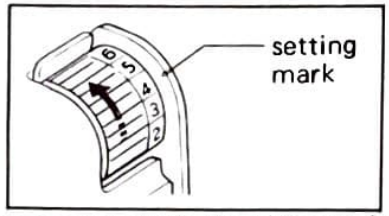
REGULATING THE THREAD TENSION

Generally, thread tension should be controlled by the thread tension dial. Bobbin thread tension has been adjusted at the factory and readjustment is scarecely needed except for special stitch, thread and fabric. Bobbin thread tension is just right when you can pull the thread from bobbin case easily with a little resistance.
Thread tension may be adjusted by tightening or loosening the thread tension dial, if necessary.



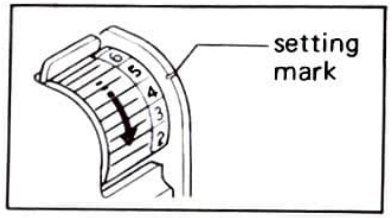
The needle thread and the bobbin thread should interlock in the center of two layers of fabric.

The bobbin thread appears on the upper surface of the fabrics.



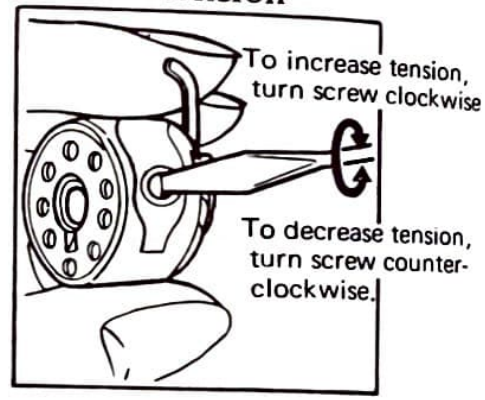
Loosen the needle thread tension by moving the dial to the lower number.

The needle thread appears on the underside of the fabrics.



Tighten the needle thread tension by moving the dial to the higher number.

*How to adjust the bobbin thread tension



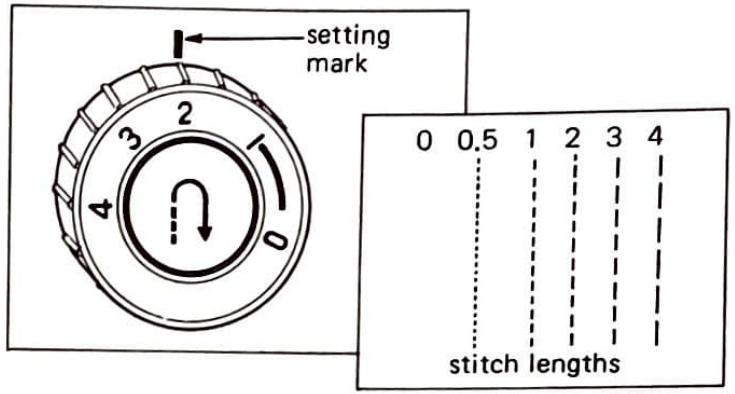
*There are many reasons for having to reset your tension. The best tension for one fabric may not be correct for another. The required tension depends upon the stiffness of fabric, thickness of the fabric, numbers of layers of fabric being sewn, as well as the type of stitch you are making.

*It is better to test the stitching on a scrap of the fabric you are using before starting to make a garment.

STITCH LENGTH DIAL, REVERSING BUTTON AND DROPPING THE FEED

To change the length of the stitches proceed as follows:

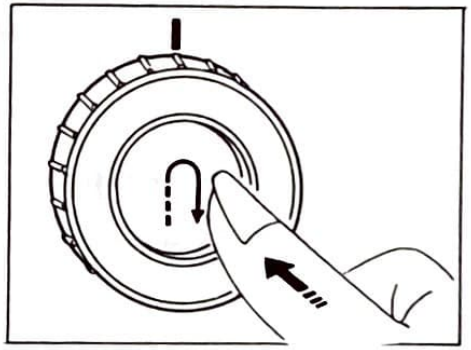
Turn the dial so that the number for the required stitch length is at setting mark. The numbers indicate the approximate stitch lengths in mm. The lower the number, the shorter the stitch.



REVERSE STITCH:

Press center of the stitch length dial (reversing button) and hold for reverse stitching. Fabric will immediately start feeding backwards. Release button and machine will resume normal forward sewing.

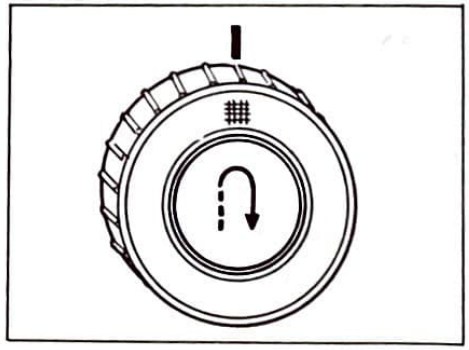
Very useful for fastening ends of seams and darts without having to tie threads, and for strengthening seams.



DROPPING THE FEED DOG:

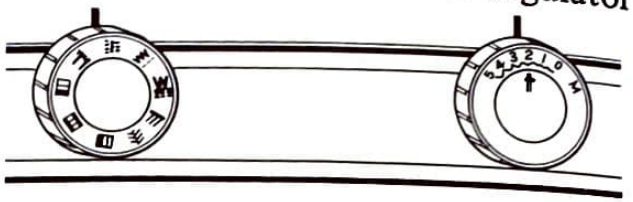
Embroidering and darning are best carried out with the feed mechanism disengaged. This is done by setting the stitch length dial at ⋕ , which drops the feed and allows the material to be moved freely under the needle.

The feed starts its normal function again as soon as you turn the stitch length dial to "0" or beyond it.



THE PATTERN SELECTOR AND STITCH WIDTH REGULATOR

The utility stitches and buttonhole sewing are controlled by the pattern selector dial. (the left side)
The stitch width for the zigzag stitches (and) can be adjusted with the stitch width regulator dial. (the right side)
The lower the number on the stitch width regulator dial, the narrower the stitch width.



straight stitch and zigzag stitch

tricot stitch

stretch blind stitch

automatic buttonhole sewing

*Selecting Stretch Stitch

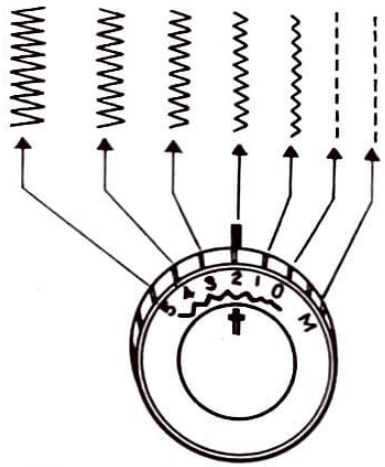
For sewing stretch stitch, set the stitch length dial at "4" and the symbol on the pattern selector dial at the setting mark.

triple straight stretch stitch and triple zigzag stretch stitch (ric-rac stitch)

feather stitch

overlock stitch

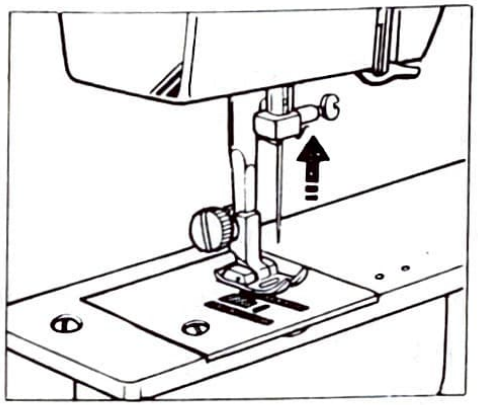
Note: *Raise the needle to its highest position before turning the pattern selector and stitch width dial.



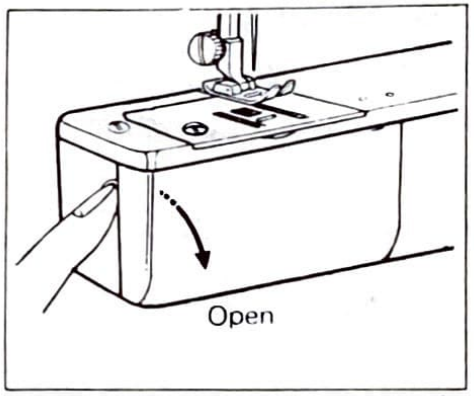
If you use a twin needle, zigzag stitch width should be in the range "" (zigzag width less than "" mark).

REMOVING THE BOBBIN CASE AND BOBBIN

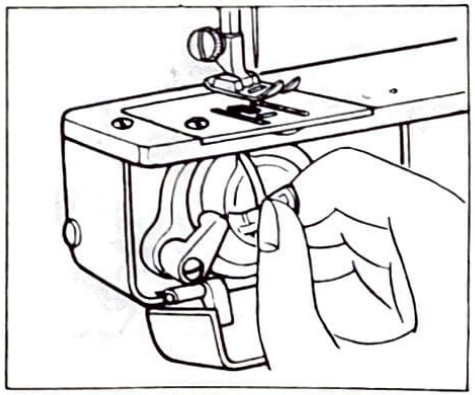
① Raise the presser foot and turn the balance wheel towards you until the thread take-up lever is at its highest position.



② Open the shuttle cover.

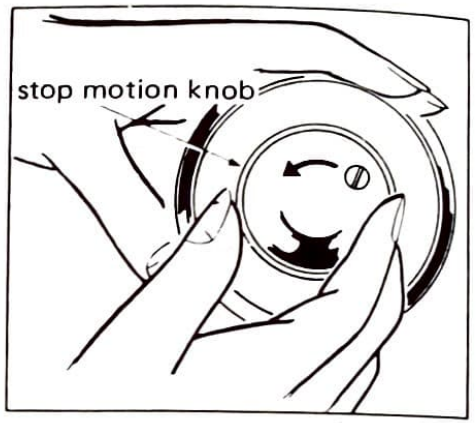


③ Open hinged latch of bobbin case and pull bobbin case out of machine.
Release the latch and the bobbin will fall out. As long as you hold the bobbin case latch open, the bobbin cannot drop out.



WINDING THE BOBBIN

Hold the balance wheel firmly with your left hand and turn stop motion knob toward you with your right hand.



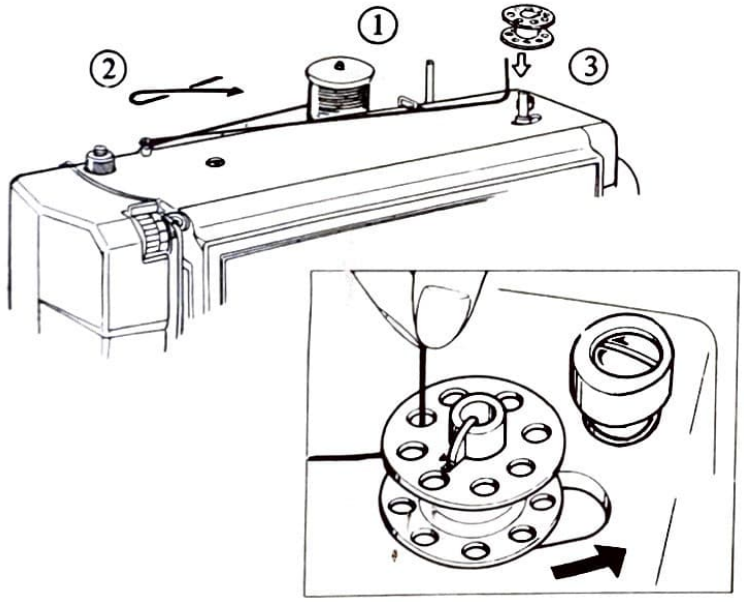
Place a spool of thread on pin ①. Lead the thread crossways at the bobbin winder thread guide ②.

Thread the bobbin through one of its holes from the inside outwards and place the bobbin on bobbin winder spindle ③.

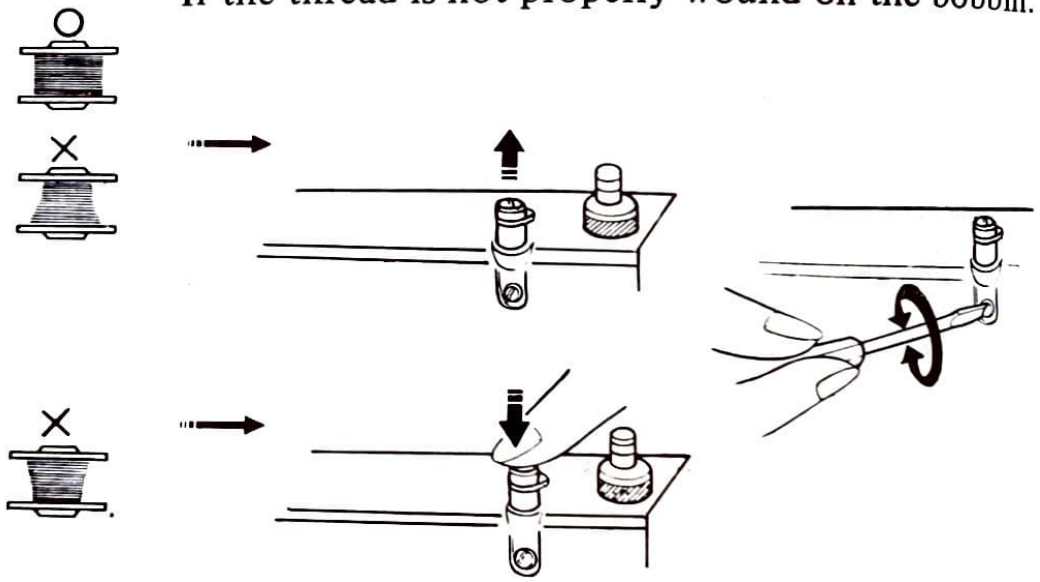
Push both spindle and bobbin towards the stopper. Hold end of thread from bobbin and press down speed controller.
Release end of thread when winding starts.

Run the machine slowly until the bobbin stops, then push the spindle away from the stopper and cut the thread. Remove bobbin.

Tighten stop motion knob.



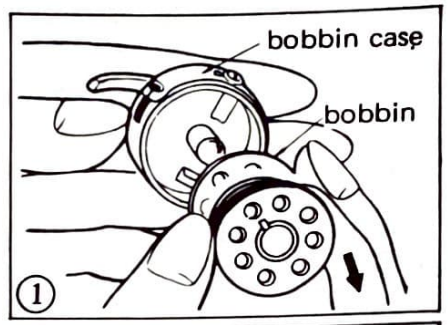
*If the thread is not properly wound on the bobbin.



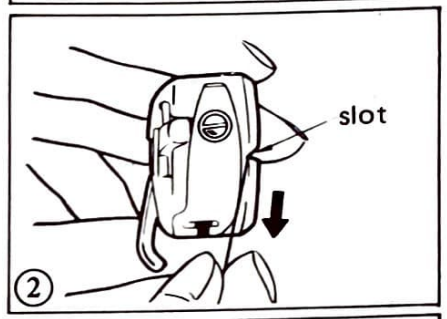
THREADING THE BOBBIN CASE

Hold the bobbin between the thumb and forefinger of your right hand and pull off about 15 cm (6 inches) of thread.

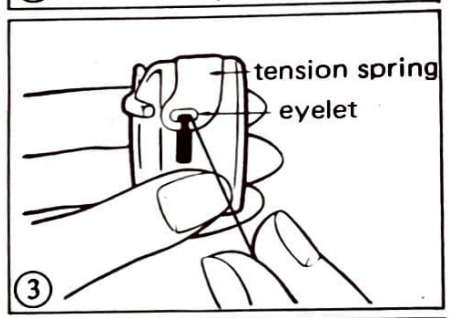
① Hold the bobbin case in your left hand as shown and place the filled bobbin inside.



② Pull the thread into the slot in the edge of the bobbin case.

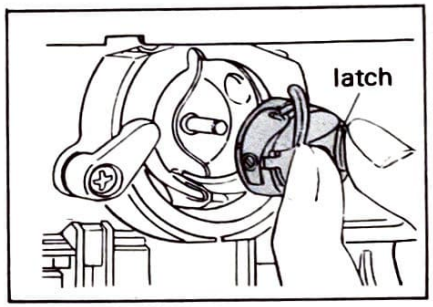


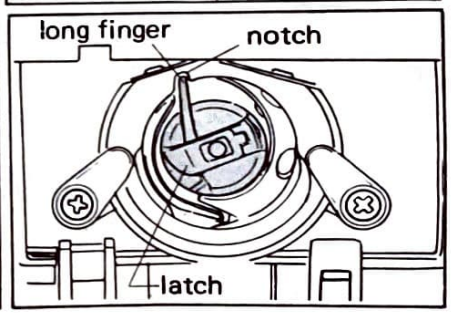
③ Now pull the thread under the tension spring and into the thread eyelet.



To insert the bobbin case and bobbin .....

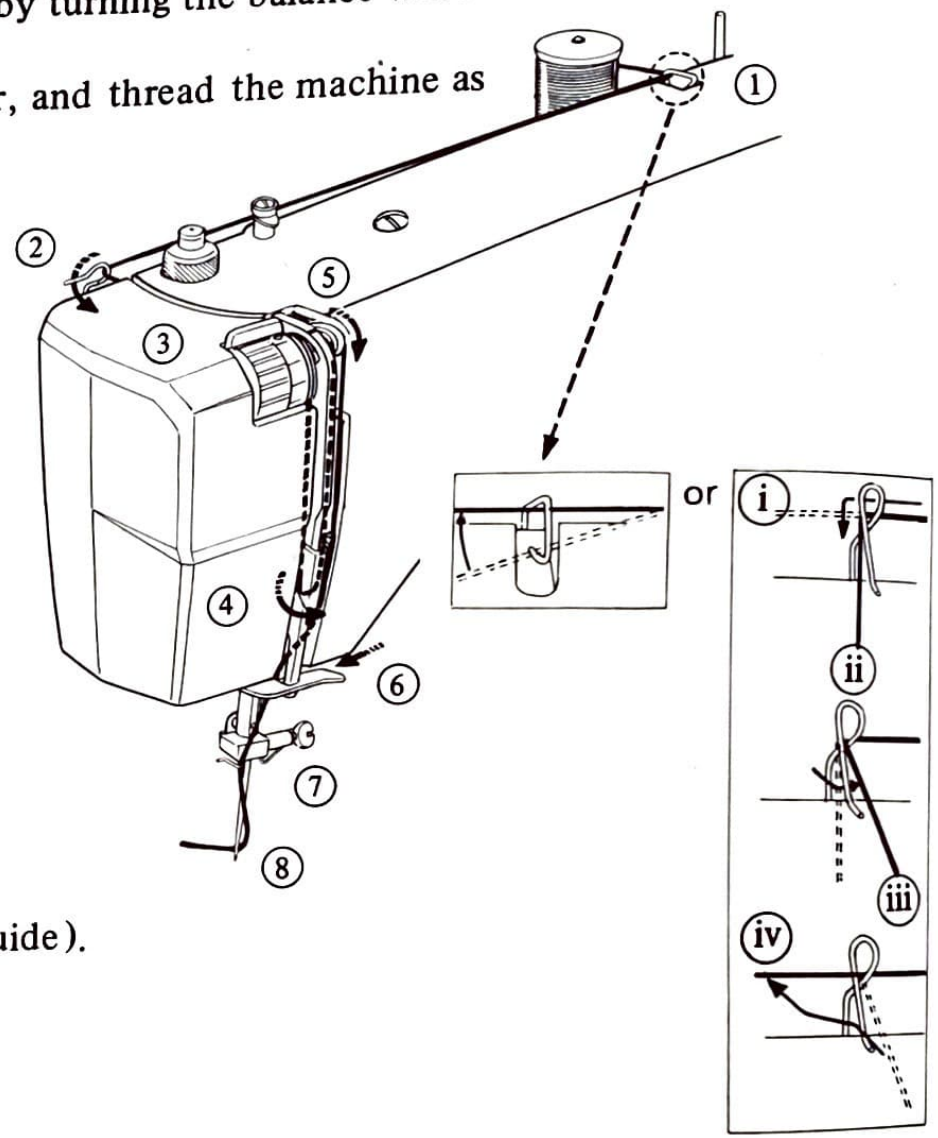
Ensure that about 15 cm (6 inches) of thread extends out of bobbin. Hold the bobbin case so that long finger on case points up. Open the latch of bobbin case. Slip the bobbin case over the center pin of hook and press in place until long finger of the bobbin case enters notch. Release latch and press down. Close the shuttle cover.





THREADING THE NEEDLE THREAD

Move the thread take-up lever to its highest position by turning the balance wheel towards you.
Lift the presser foot by raising the presser foot lifter, and thread the machine as follows:



① Pass the thread through the guide at the right side.

② Pass the thread through the thread guide behind the face plate.
Hold the spool of thread with your right hand and draw the thread along the groove between top cover and face plate.

③ Lead the thread down around the check spring holder.

④ Turn up check spring holder.

⑤ Draw the thread from left to right over the thread take-up lever.

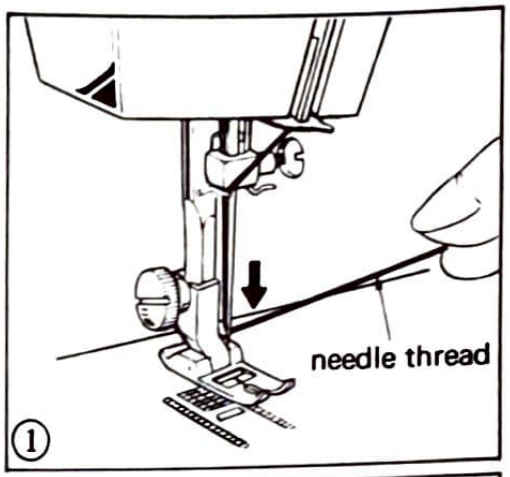
⑥ Then down through the lower thread guide.

⑦ Slide the thread through the guide at the bottom end of the needle bar(needle bar thread guide).

⑧ Thread needle eye from the front and pull about 15 cm (6 inches).

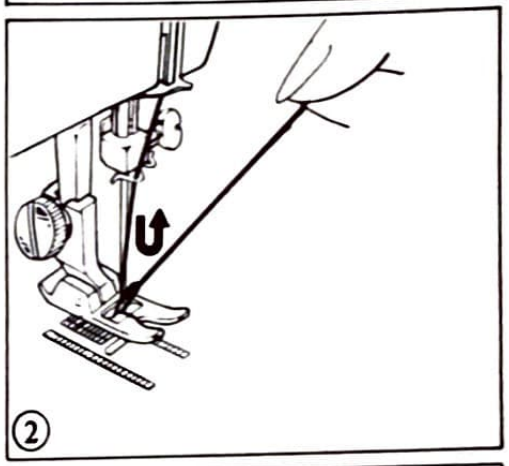
DRAWING UP THE BOBBIN THREAD

① Hold the end of the needle thread with your left hand.

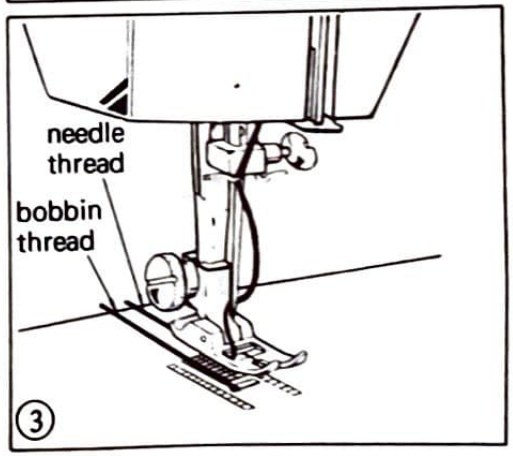


② Turn the balance wheel slowly towards you with your right hand until the neddle goes down and comes up. Then stop the balance wheel when the take-up lever is at its highest pisition.

Lightly draw up the needle thread forming a loop with the bobbin thread.



③ Pull about 15 cm (6 inches) of both threads away from you under the presser foot.



STRAIGHT STITCH AND ZIGZAG STITCH

Presser foot	zigzag foot
Pattern selector	
Stitch width	M (for straight stitch)
	(for zigzag stitch)
Stitch length	0.3 ~ 4

zigzag foot

Starting Sewing

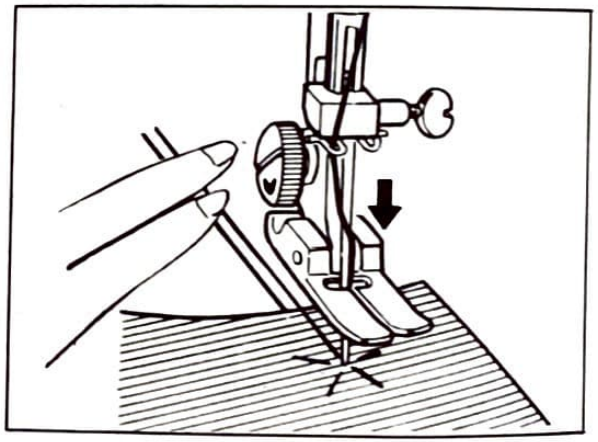
1 Be sure both the threads are drawn back under the presser foot.

2 While holding the threads with your left hand, turn the balance wheel toward you to bring the needle into the fabric where you wish to start sewing.

3 Lower the presser foot, and press the speed controller gently, then start sewing slowly.

*Sew a few reverse stitches by pushing reverse button for reinforcing the end of seams.

*Raise the needle to its highest position before turning the pattern selector dial and stitch width dial.

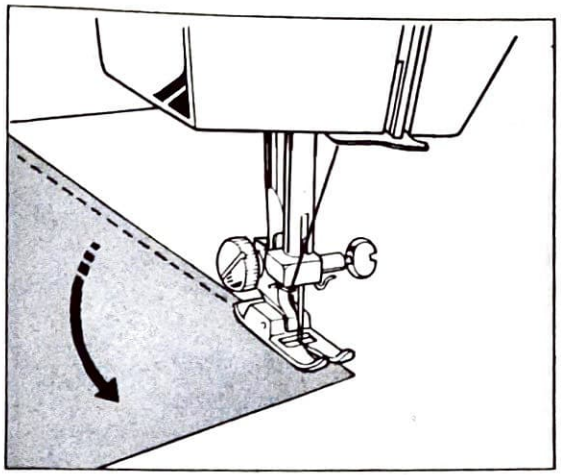


Changing Sewing Directions

① Stop the machine, and turn the balance wheel toward you to bring the needle down into the fabric. Raise the presser foot.

② Pivot the fabric around the needle to change direction as desired.

③ Lower the presser foot and continue the sewing.

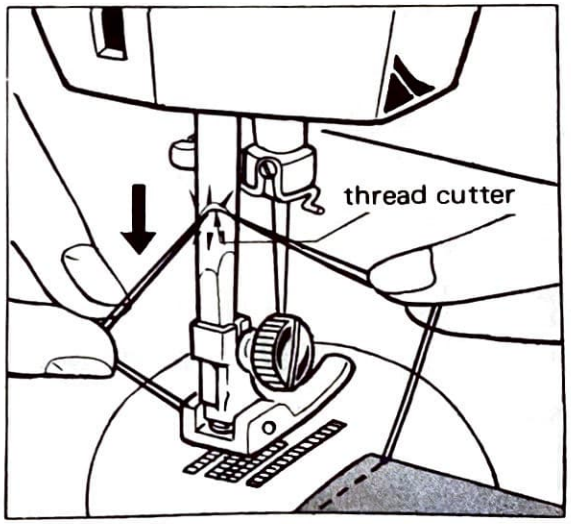


Fastening Seams

① For fastening the ends of seams, press down the reversing button and sew several reverse stitches.

② To remove the fabric, raise the presser foot and draw the fabric away from you.

③ Sever threads on thread cutter at the rear of presser bar or with a pair of scissors.
Leave about 15 cm (6 inches) of thread hanging from the needle eye.



STRAIGHT STITCH AND ZIGZAG STITCH

Presser foot	zigzag foot
Pattern selector	
Stitch width	M (for straight stitch)
	(for zigzag stitch)
Stitch length	0.3 ~ 4

zigzag foot

Starting Sewing

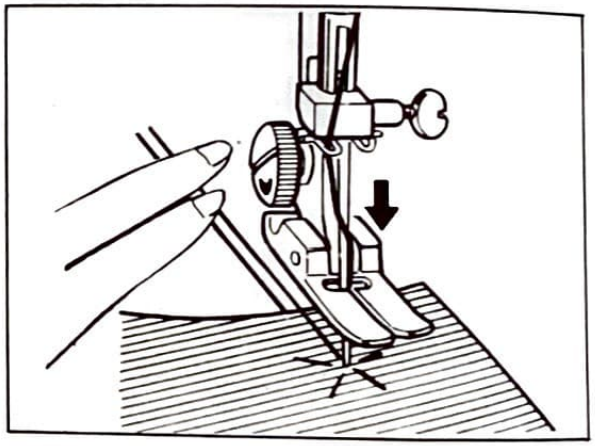
1 Be sure both the threads are drawn back under the presser foot.

2 While holding the threads with your left hand, turn the balance wheel toward you to bring the needle into the fabric where you wish to start sewing.

3 Lower the presser foot, and press the speed controller gently, then start sewing slowly.

*Sew a few reverse stitches by pushing reverse button for reinforcing the end of seams.

*Raise the needle to its highest position before turning the pattern selector dial and stitch width dial.



Changing Sewing Directions

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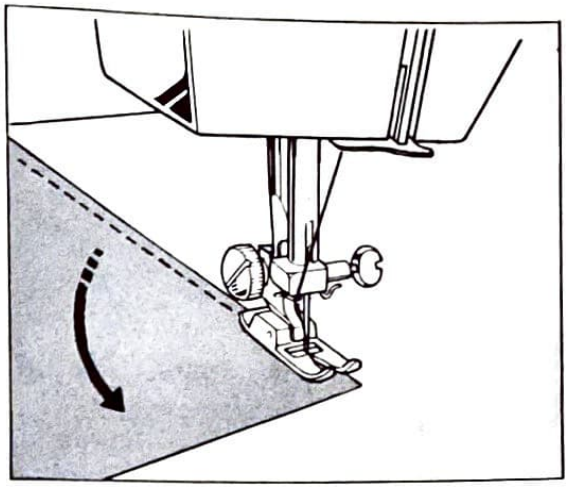
② Pivot the fabric around the needle to change direction as desired.

③ Lower the presser foot and continue the sewing.



Fastening Seams

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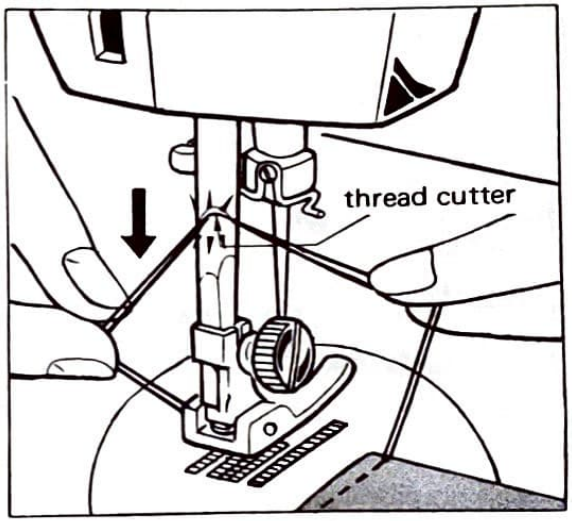
Leave about 15 cm (6 inches) of thread hanging from the needle eye.



SEWING TUBULAR-SHAPED ARTICLES

The free arm sewing is particularly suitable for sewing or darning tubular articles such as sleeves, trousers or socks.

TO REMOVE TABLE:

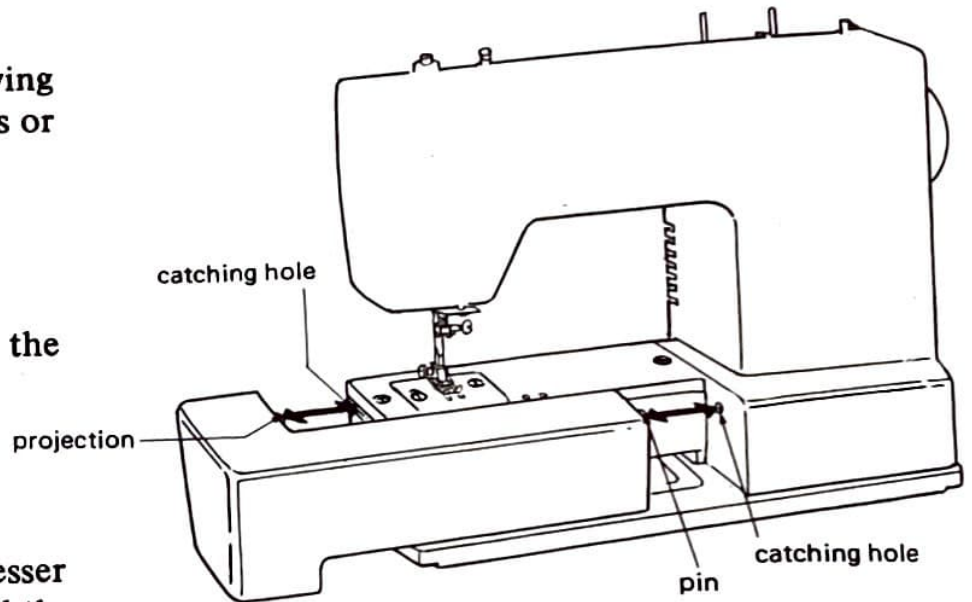
Pull the detachable sewing table away from the machine.

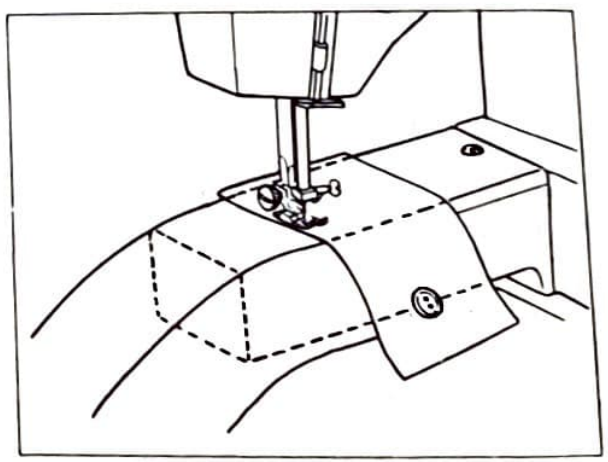
HOW TO USE:

Place the article over the free arm, lower the presser foot and begin to sew, guiding the material lightly with your hands.

TO FIT THE TABLE:

Push the table alongside the free arm of the machine until the corresponding holes catch the pin and the projection.

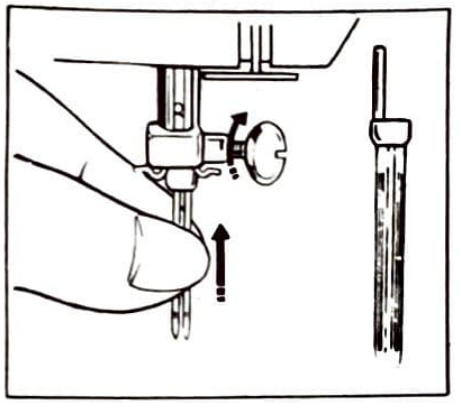


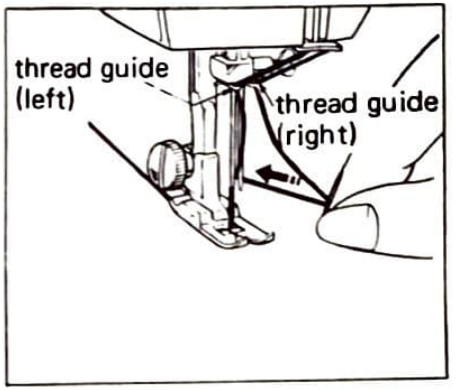


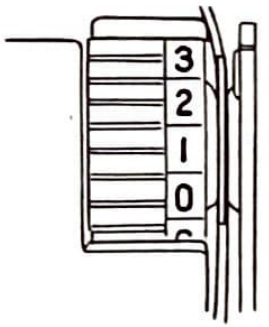
SEWING WITH A TWIN NEEDLE

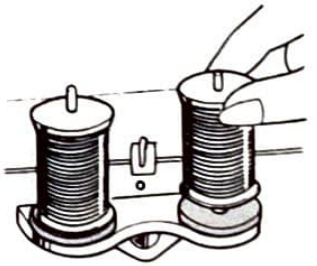
Pretty colored patterns can be made by sewing with a twin needle and different-colored threads.

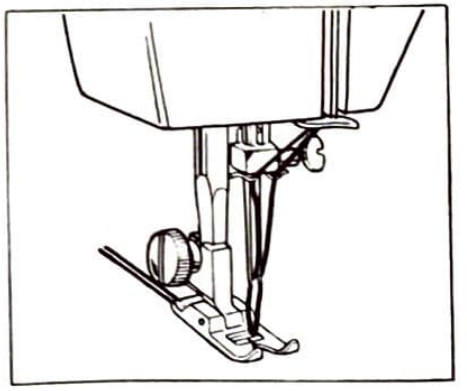
Presser foot	zigzag foot
Pattern selector	W
Stitch width	M or 0 ~ 2 (less than "╫" mark)
Stitch length	0.5 ~ 1











1. Set the desired width between "0 ~ 2" or "M" mark by turning the stitch width regulator dial, otherwise a needle may hit the needle plate.
2. Insert the twin needle in the same way as a single one (flat side away from you).
   Place two spools of threads on the spool pins.
3. The machine is threaded in the same way as that in the case of a single thread, except that the threads are divided at the tension regulator. The threads should be passed between discs of thread tension, needle bar thread guides and two needle eyes.

Note: *Be sure to place the two round felts provided in the accessories over the spool pins. To turn a corner with a twin needle, you have to take the needles out of the fabric, otherwise the twin needle will break or bend.

TRIPLE STRETCH STITCH

If you wish to sew stretch fabrics, this is the right stitch to avoid thread breaking. This is also very suitable for seams that need great strength, e.g. crutch seams or pocket seams.

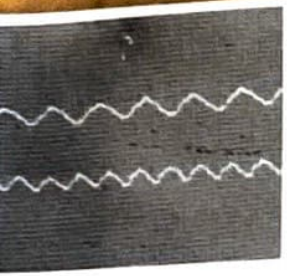
TRIPLE STRAIGHT STRETCH STITCH

Presser foot	zigzag foot
Pattern selector	
Stitch width	M
Stitch length	4

TRIPLE ZIGZAG STRETCH STITCH

Presser foot	zigzag foot
Pattern selector	
Stitch width	0 ~ 5
Stitch length	4

Note: *Use a BLUE TIPPED needle.
The blue tipped needle effectively prevents skipped stitches.

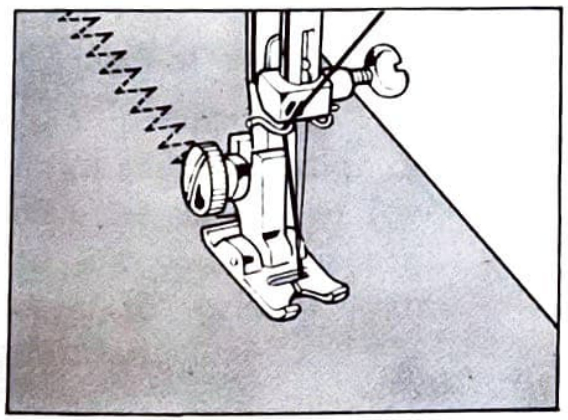


TRICOT ZIGZAG STITCH

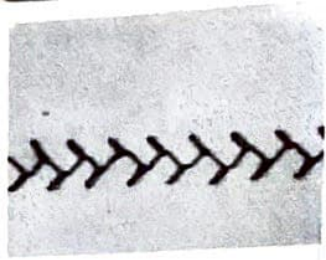
This stitch is very suitable for darning tears. It can also be used for reinforcing stretch materials and sewing on fabric parts.

Presser foot	zigzag foot
Pattern selector	
Stitch width	5
Stitch length	0.3 ~ 4

Note: *Use a BLUE TIPPED needle.
The blue tipped needle effectively prevents skipped stitches.



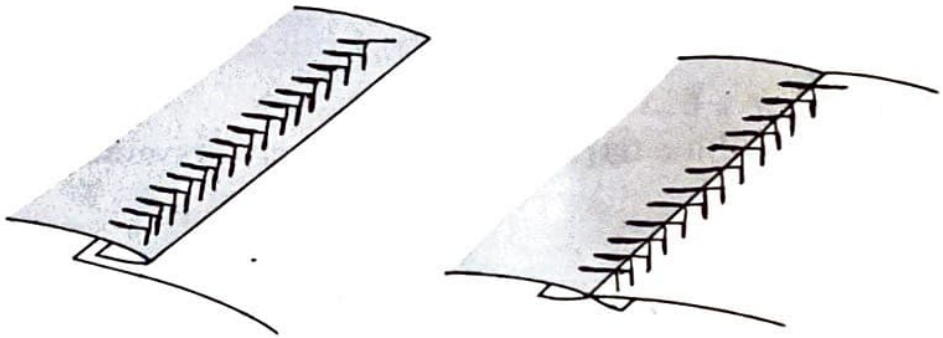
FEATHERS STITCH



With this type of sewing, seams are elastic and fabrics can be joined firmly. Use the feather stitch to sew bathing suits, mend girdles and bras and as a decorative top stitch.

Presser foot	zigzag foot
Pattern selector	
Stitch width	5
Stitch length	4

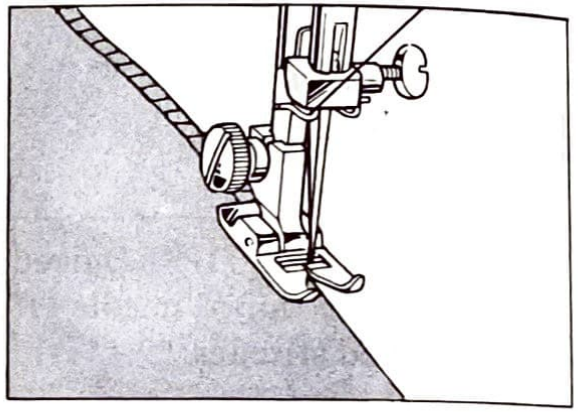
Note: *Use a BLUE TIPPED needle.
The blue tipped needle effectively prevents skipped stitches.



OVERLOCK STITCH

With this seam, it is possible to provided raw edges, especially on easily fraying fabrics, with a good-looking and lasting edge finish.

Presser foot	zigzag foot
Pattern selector	
Stitch width	5
Stitch length	4



Place the fabric under the presser foot so that the stitches are made over the edge.

Lower the presser foot and start sewing.

Guide the material lightly as shown.

Sew on a piece of waste fabric to check the machine setting.

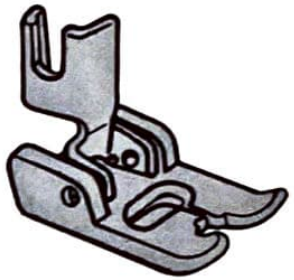
The overlock stitches are formed correctly when the needle sewings to the right and it just misses the fabric edge.

Note: *Use a BLUE TIPPED needle.
The blue tipped needle effectively prevents skipped stitches.

SEWING BUTTONHOLES

The buttonhole mecnanism built-in this machine makes it possible to sew buttonholes in a short time without turning the material.

Presser foot	buttonhole foot
Pattern selector	→ → →
Stitch width	5
Stitch length	0.3 ~ 1



buttonhole foot

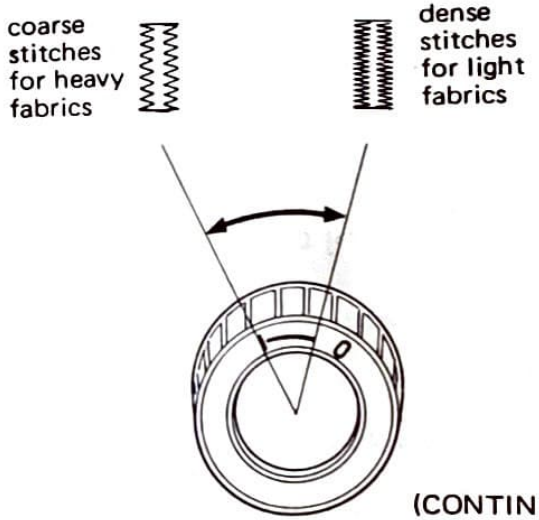
Raise the foot and the needle to its highest position. Replace the foot with the transparent buttonhole foot for sewing buttonholes.

Mark the location and the desired length of buttonhole on the fabric using a pencil or tailor's chalk.

Note: *To find the most suitable stitch length, it is better to sew a sample buttonhole on a piece of waste fabric.

*When sewing very fine fabrics and synthetics, decrease the pressure of foot and sew over a piece of paper to prevent yarn distortion.

*The mark on the stitch length dial shows a range of buttonhole sewing. An adjustment can be made by setting the mark, as shown.

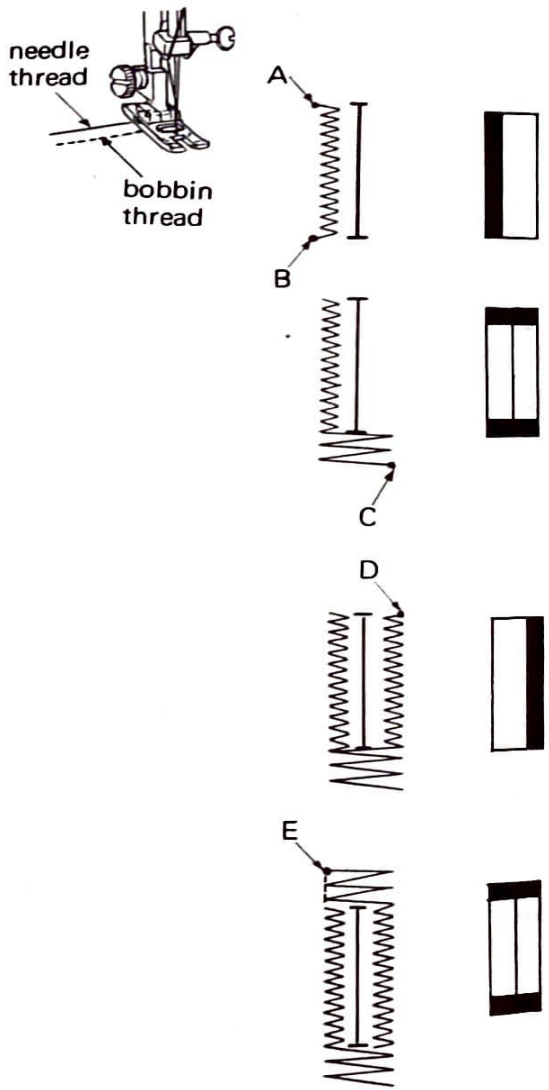


(CONTINUED)

SEWING BUTTONHOLES (continued)

1. Set the pattern selector at "▮". Then pass the needle thread through the opening in the buttonhole foot and draw both of needle and bobbin threads to the left side. Turn the balance wheel towards you until the needle comes to the point (A).
2. Lower the foot and sew slowly until a desired length is sewn, then stop the machine at (B).
3. Raise the needle and set the selector at "▯". Then sew several stitches of bar tack until the needle is at point (C).
4. Raise the needle and set the selector at "▯", then sew the right side of buttonhole just as the same length as the left side of buttonhole. Stop the machine at (D).
5. Raise needle and set the selector at "▯", then sew several stitches of final bar tack. Stop the machine with the needle at point (E). For fastening seam end, set the pattern selector at " ", stitch width at "0 (zero point of zigzag width)" and sew a few stitches.
6. Cut the buttonhole open carefully using a seam ripper, taking care not to damage the bar tacks.

Note: *To make a heavier buttonhole, sew twice by repeating the same procedure.



SEWING ZIPPERS

Presser foot	zipper foot
Pattern selector	W
Stitch width	0 (zero point of ZZ width)
Stitch length	1 ~ 4

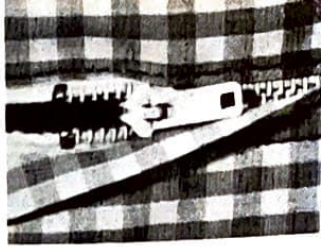
Raise the foot and the needle to its highest position by turning the balance wheel towards you. Replace the foot with the zipper foot.

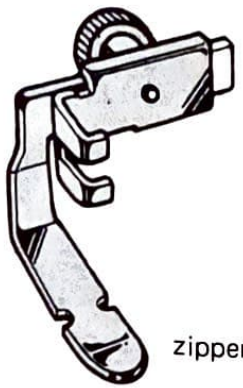
1. Pin or baste the zipper tape to the fabric and place the workpiece in position under the foot.
   Loosen the zipper foot adjusting screw to set the foot on the left side of needle.

   *When starting sewing, both needle and bobbin threads ends should be put away under the foot.

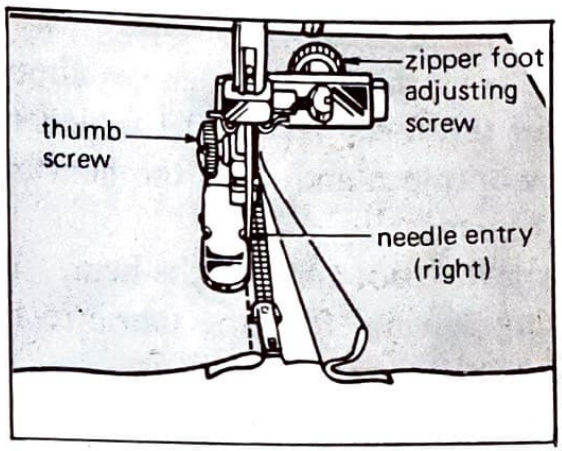
2. Sew on the left side of the zipper by guiding zipper teeth as close as possible to the needle drop. Before the foot reaches the slider on the zipper tape, raise the foot and open the zipper by keeping the needle in the fabric.
   Lower the foot and sew on the remainder of the seam.

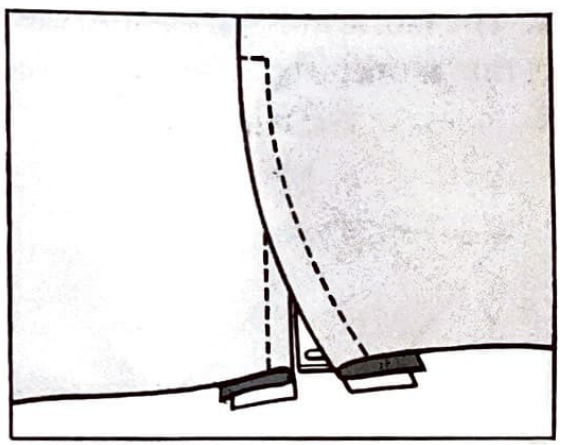
3. To sew the right side zipper, loosen the adjusting screw for bringing the foot to the right side of the needle. Sew on in the same way as you did on the left side of zipper.





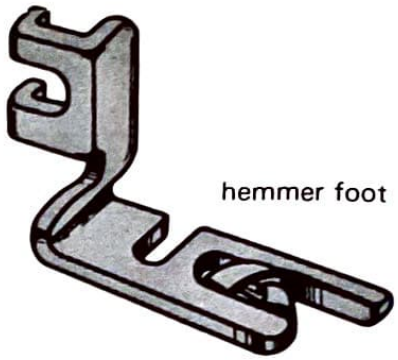
zipper foot





HEMMING

Presser foot	hemmer foot
Pattern selector	WW
Stitch width	M
Stitch length	1 ~ 4

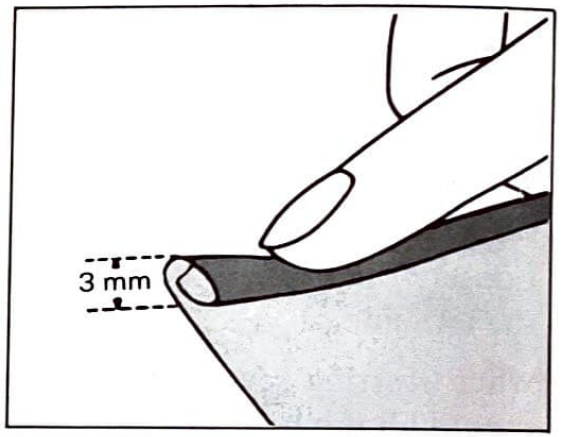


Raise the foot and the needle to its highest position. Replace the foot with the hemmer foot.

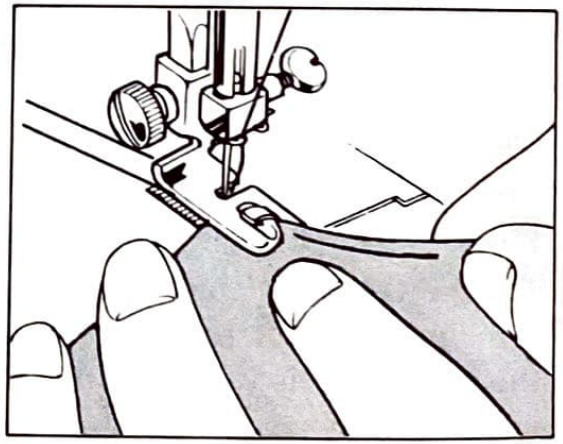
Fold over the fabric edge by about 3 mm (1/8 inches) and place it under the foot. Secure the folded edge with a few stitches. Take out the workpiece and draw the hem into the hemmer foot by pulling on the threads.

Lower the foot and sew the hem.

During sewing, fold the fabric to the left a little and allow it to run into the hemmer foot.



Make sure that the fabric does not move under the right half of the foot. The fabric must be fed into the scroll of the hemmer sufficiently so that the workpiece edge runs freely through the groove under the foot.



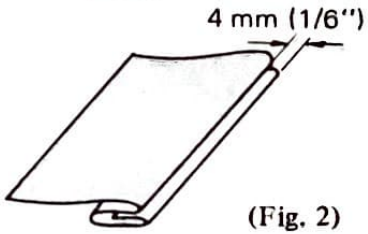
SEWING BLIND HEMS

Presser foot	zigzag foot
Pattern selector	
Stitch width	5
Stitch length	1 ~ 3
Attachment	blind stitch hem guide

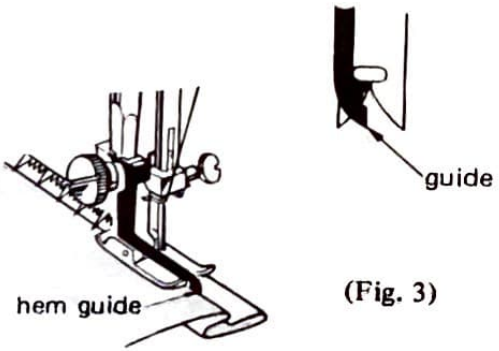
Lower the zigzag foot and loosen the presser foot thumb screw in order to place the hem guide between the screw and the foot. Tighten the thumb screw and make sure the guide is in the middle of the two prongs of the zigzag foot.

1. Turn up the hem with the desired width and press. (Fig. 1)
2. Fold hem back against the right side of the garment with top edge of hem extending about 4 mm (1/6 inches) to the right side of the garment folded. (Fig. 2)
3. Place the garment under the foot so that double-folded edge runs along the hem guide and lower the foot.
   Sew slowly for better control, making sure the narrow zigzag stitches will fall on the hem edge and wide zigzag stitches will just catch one thread of folded edge. (Fig. 3)
4. Unfold the fabric and you will have a blind stitch hem (Fig. 4)

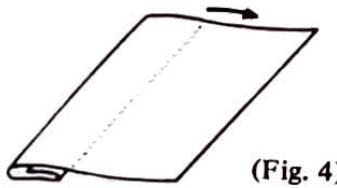
(Fig. 1)



(Fig. 2)



(Fig. 3)



(Fig. 4)

EMBROIDERY

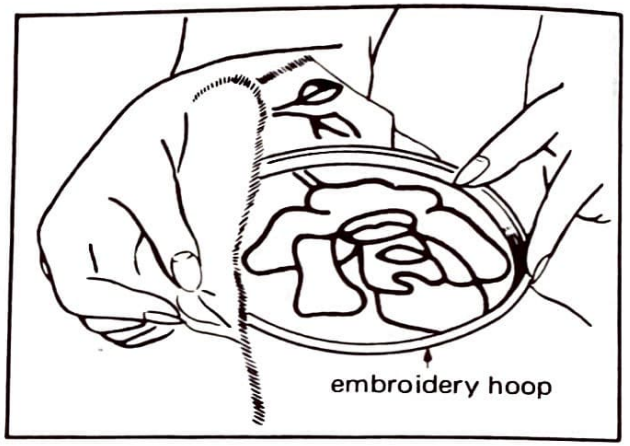
Remove presser foot	
Pattern selector	W
Stitch width	0 ~ 5
Stitch length	###

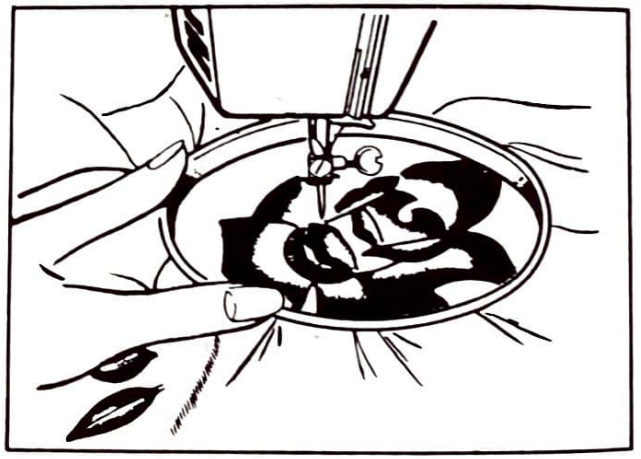
Place the fabric with embrodidery hoop. Set the stitch length dial at " ### ". Lower the presser foot lifter. Hold the embroidery hoop firmly with your hand.

While sewing the desired pattern, move the embroidery hoop slowly and do not allow your fingers to get near the needle.

*Set the needle thread tension a little looser so that the bobbin thread is not pulled through to the right side of fabric.

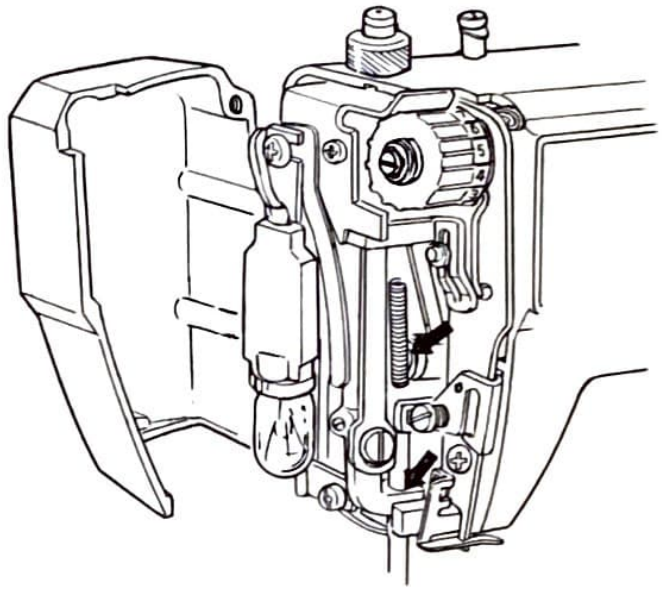
*It is recommended to mark the required embroidery pattern on the right side of the fabric with a pencil or tailor's chalk.



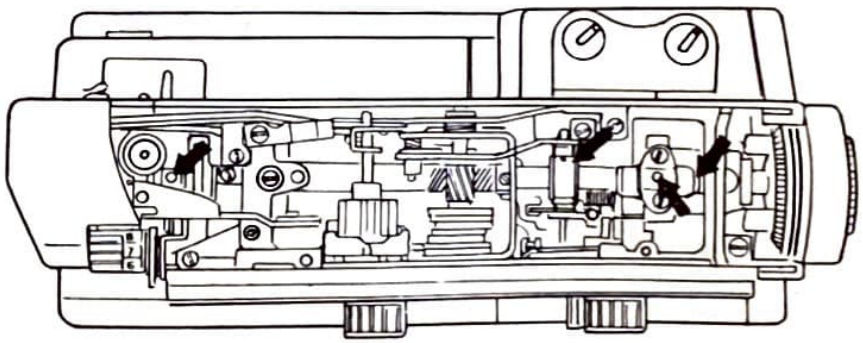


HOW TO OIL THE MACHINE

The oiling points are marked with arrows in the illustrations. Before oiling, they should be wiped clean. Apply one or two drops of a fine quality sewing machine oil. If the machine is in constant use, this should be done every two or three days. If the machine should not run well after being out of use for a long period, apply a few drops of oil to the oiling points and run the machine fast with all covers on for about one minute. Before using the machine again oil it in the usual way.



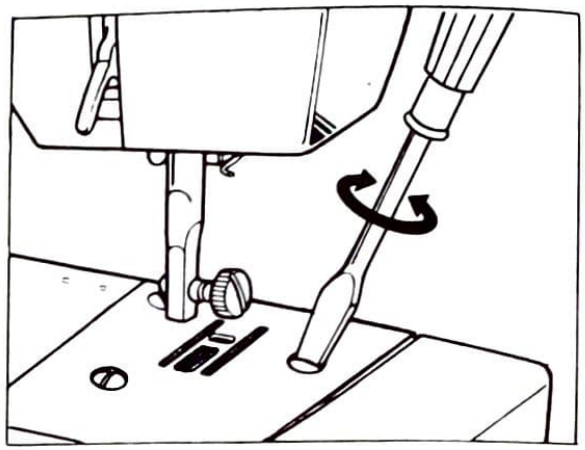
*Do not forget to sew first on waste fabric, in order to soak up any excess oil.

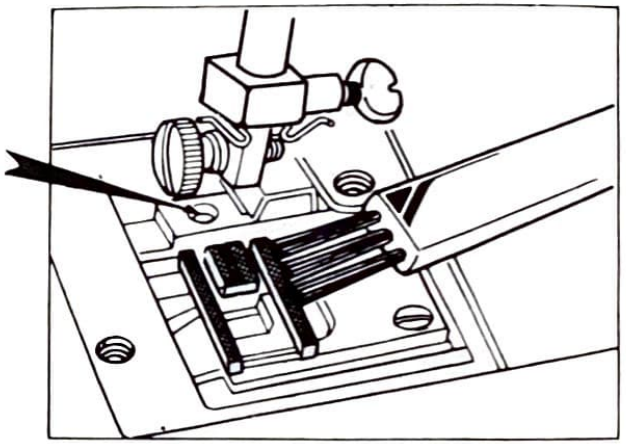


CLEANING THE FEED DOG

It is necessary to keep the feed dog teeth always cleaned in order to ensure smooth sewing.
Remove the needle and the presser foot.
Unscrew the needle plate set screws with a screw driver to take off the needle plate from the machine.
With a brush, clean out dust and lint clogged on the feed dog teeth.
Refit the needle plate.

Note: *After cleaning feed dog, apply a few drops of sewing machine oil to the point as shown in the illustration.





CLEANING THE SHUTTLE RACE

Unplug the machine from the power supply.

To remove shuttle:

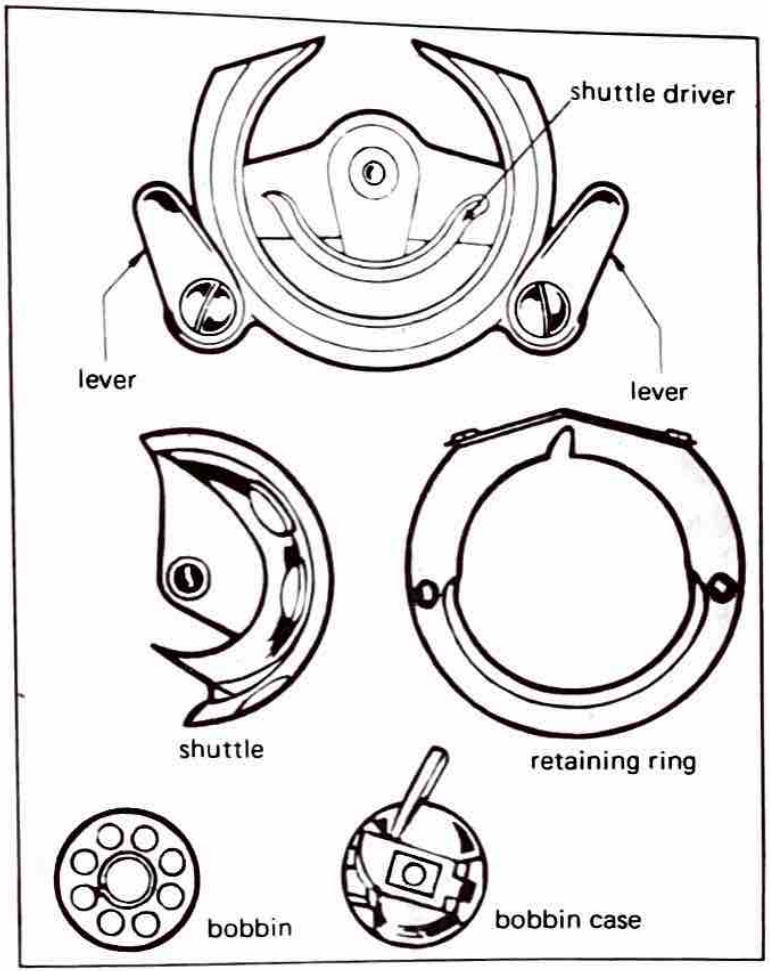
Raise needle to its highest position and remove bobbin case. Turn levers away from shuttle and lift out retaining ring and shuttle, by grasping center pin.

Clean the reverse side of feed dog with a small brush. Remove lint and thread from all parts of shuttle and wipe with a lightly oiled cloth.

To reassemble:

Hold shuttle by center pin and fit carefully back into shuttle race, forming perfect circle with shuttle driver.

Replace retaining ring polished side out, making sure the bottom pin fits into notch. Lock retaining ring by turning levers back into position. Refit bobbin case with bobbin.



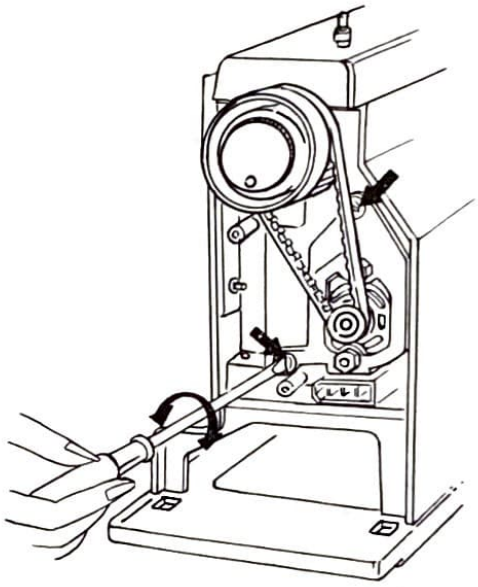
DRIVE BELT TENSION

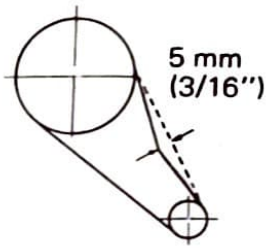
If the motor no longer drives properly or the drive belt has just been replaced, the drive belt tension has to be adjusted.

To do this:
Unscrew and take off the belt cover.
Loosen the fixing screws of the motor bracket (see ill.).

Push the motor bracket downward or upward to a position in which you can push the belt inwards by about 5 mm (3/16 inches) (see ill.), then tighten the screws again.

Caution: Never adjust the belt too tight, otherwise you may damage the motor or the machine.





TROUBLE SHOOTING: CAUSES AND REMEDIES

CAUSE	REMEDY
NEEDLE THREAD BREAKS	
Needle not properly threaded	Thread properly
Thread tension too tight	Loosen tension
Something wrong with the needle	Replace needle
Thread is too heavy for needle	Change
Thread check spring is broken	Have a new spring fitted
Needle not properly inserted	Insert needle properly
Needle plate, shuttle or sewing foot damaged	Replace
BOBBIN THREAD BREAKS	
Bobbin thread entangled because of incorrectly wound bobbin	Wind bobbin correctly
Bobbin thread not under tension spring on bobbin case	Thread bobbin correctly
STITCHES ARE LEFT OUT	
Needle not properly fitted on needle bar	Fit needle properly
Needle bent or blunt	Replace
Needle worn	Replace
NEEDLE BREAKS	
Needle bent	Replace
Needle not properly fitted	Fit needle properly
Fabric too heavy or too hard	Use needle of correct size
You are pulling on the fabric	Do not pull

TROUBLE SHOOTING: CAUSES AND REMEDIES

CAUSE	REMEDY
THREAD FORMS LOOPS	
Thread tension not properly regulated	Read instructions for regulating needle- and bobbin thread tension
Needle thread not properly threaded and/or bobbin thread not properly wound	Thread machine properly and/or wind bobbin thread correctly
Thread size not suited to fabric	See "Size of needle and thread"
Thread check spring not working properly	Have spring replaced
SHRINKING OR PUCKERING OF THE SEAM	
Tension too tight	Read instructions for regulating needle- and bobbin thread tensions
Sewing foot pressure too strong	Read instructions for regulating sewing foot pressure
IRREGULAR STITCHES	
Needle and bobbin threads of poor quality	Use top quality threads
Bobbin thread unevenly wound	Re-wind bobbin
MACHINE DOES NOT RUN FREELY AND MAKES A NOISE	
Machine needs oiling	Read instructions on how to oil
Dust and thread in shuttle	Read instructions on how to clean shuttle race
Wrong oil used, has now clogged machine	Clean machine carefully and re-oil with top quality oil
Drive belt tension too tight	Loosen tension of drive belt